

Amendments to the Claims:

Please amend claims 2-13 and 15-26 as shown below. This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Original) A method of creating a non-hydrochlorofluorocarbon refrigerant mixture, capable of providing temperatures as low as about -150° C, comprising the steps of:

adding non-hydrochlorofluorocarbon refrigerants to refrigerant R740.

2. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

3. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, ~~R170~~, R508a, R508b and R1150.

4. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

5. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of ~~R23~~, R116, ~~R170~~, R508a, R508b and R1150.

6. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

7. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consists of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

8. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consists of:

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

9. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

10. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consists of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

11. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

12. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of ~~R23~~, R116, ~~R170~~, R508a, R508b and R1150.

13. (Currently Amended) The method of claim 1, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of ~~R23~~, R116, R170, R508a, R508b and R1150.

14. (Original) A non-hydrochlorofluorocarbon refrigerant mixture for use in a refrigeration system capable of providing temperatures as low as about -150° C, consisting of:

R740 and at least four non-hydrochlorofluorocarbon refrigerants.

15. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

16. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

17. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

18. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

19. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

~~any one refrigerant from the group consisting of R134a, R152a and R290;~~

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

20. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

21. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of ~~R227ea, R236fa,~~ RC318, R600 and R600a;

any one refrigerant from the group consisting of R134a, R152a and R290; and

any one refrigerant from the group consisting of R23, R116, R170, R508a, R508b and R1150.

22. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, ~~R170,~~ R508a, R508b and R1150.

23. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

R50;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa;

any one refrigerant from the group consisting of R227ea, R236fa, RC318, R600 and R600a; and

any one refrigerant from the group consisting of ~~R23~~, R116, ~~R170~~, R508a, R508b and R1150.

24. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R14;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of R116, R170, R508a, R508b and R1150.

25. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of R134a, R152a and R290;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of ~~R23~~, R116, ~~R170~~, R508a, R508b and R1150.

26. (Currently Amended) The refrigerant mixture according to claim 14, wherein said non-hydrochlorofluorocarbon refrigerants consist of:

R50;

any one refrigerant from the group consisting of ~~R227ea, R236fa~~, RC318, R600 and R600a;

any one refrigerant from the group consisting of R236ea, R245ca and R245fa; and

any one refrigerant from the group consisting of ~~R23~~, R116, ~~R170~~, R508a, R508b and R1150.

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (New) The method of claim 1, further comprising:

circulating the non-hydrochlorofluorocarbon refrigerants and the refrigerant R740 through a compressor, an auxiliary condenser connected to the compressor, a liquid/gas separator connected to the auxiliary condenser, a first condenser connected to the liquid/gas separator, a second condenser connected to the first condenser, a third condenser connected to the second condenser and a subcooler connected to the third condenser;

subcooling the non-hydrochlorofluorocarbon refrigerants and the refrigerant R740;

distributing the non-hydrochlorofluorocarbon refrigerants and the refrigerant R740 from the liquid/gas separator to a first expander and a second expander;

forming a first expanded stream and a second expanded stream in the first expander and the second expander, respectively;

returning the first expanded stream to the auxiliary condenser and the compressor;
and

delivering the second expanded stream to the first condenser.